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Data and Records Management Plan for the Kennecott South Facilities Groundwater Remedial Design

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Version A

TABLE OF CONTENTS

LIST OF FIGURES

1.0 INTRODUCTION AND PURPOSE

The Kennecott Utah Copper Corporation (KUCC) South Facilities Groundwater Remedial Design Work Plan (KUCC, 2001) calls for preparation of a plan for managing data and records generated during Remedial Design/Remedial Action (RD/RA) activities. The purpose of this Data and Records Management Plan (DRMP) is to describe the strategy and procedures for documenting, managing, storing, and transferring information generated as part of the RD/RA phase. It describes the types of data that are expected to be collected. It also discusses the software and procedures that will be used for loading, tracking, storing, retrieving, transferring, and archiving all analytical data collected during the Remedial Design (RD), and how reports, correspondence, and other information generated during the RD/RA will be managed and archived.

KUCC has in place a State-approved set of documents for collection, analysis, and record keeping of environmental samples that will be used as the basis for all water and environmental data collected during the RD. These documents are:

1) The Groundwater Characterization and Monitoring Plan (KUCC 2000) provides the objectives, general procedures, and reporting requirements for the ongoing groundwater monitoring at all KUCC facilities,
2) Standard Operating Procedures for Water Sampling (KUCC 1999a) describes in detail the procedures for collecting, submitting, and reporting water samples and quality-control samples and water-level measurements,
3) Quality Assurance Project Plan for the Ground Water Characterization and Monitoring Plan (KUCC 1999b) includes discussions of project organization and responsibilities, quality assurance objectives, sampling and analytical procedures, and guidelines for data verification and reporting, quality control checks, performance and systems audits, and corrective actions.

Many of the procedures typically included in a DRMP for a Superfund site are laid out in these documents and will not be restated here. For this reason, this DRMP will give particularly strong emphasis to RD/RA project-specific data needs.

2.0 TYPES OF DATA

The types of data currently expected to be collected during the RD/RA phase are:

- Ground-Water Elevation Data
- Flow and Pumping Records
- Groundwater Monitoring Analytical Data
- Tailing Geochemistry Analytical Data (aqueous and mineralogical phases)
- Pilot Treatment Effectiveness Analytical Data
- Quality Control Data from Field Activities/Audits
- Quality Control Data from Laboratory Analysis
- Drilling and Well Construction Information, including Lithologic and Geophysical Data

Procedures for collecting and documenting field data for water samples and water levels, drilling and logging data, and flow measurements, quality control requirements, and identifying new sample sites are all specified in the GCMP and associated documents (KUCC 2000, 1999a, 1999b) and are not repeated here.

3.0 DATA MANAGEMENT AND CONTROL

Figure 1 illustrates the flow, handling, and storage of RD data. The parties responsible for data collection, generation, use, and storage are shown on this drawing and discussed in section 3.1. Computer systems shown on Figure 1 are discussed in section 3.2.

3.1 DATA FLOW AND LABORATORY USE

KUCC Engineering Services (ES) operates a small laboratory located at the South Facilities Trailer Complex. The ES Lab will be used for process diagnostics on the alkali precipitation pilot plant, spot samples on Membrane Filtration Plant waters, and occasionally on other waters when quick turn-around time is needed. The ES lab maintains QC charts for all Atomic Absorption analytes (metals), and essentially follows SW-846 QA/QC procedures for these analytes. Records of non-standard methods (i.e. carbonate in alumina, settling tests, % moisture in filter cake) will be stored on-site for audit. The nature of the samples generated during pilot testing will warrant, at times, methodologies more stringent or orthogonal to methods used for environmental matrices (e.g. CLP, SW-846, or Standard Methods for WW). Therefore data from the ES Lab will be validated by the RD sub-project managers with an eye toward process development rather than strict compliance with RCRA environmental sample analysis protocols.

Solutions and solids collected as part of the Tailing Geochemistry Investigations will be submitted directly by qualified sampling personnel to Kennecott Environmental Laboratory (KEL), who will analyze all environmental samples when practical, except those mentioned above. Samples generated by the alkali precipitation pilot plant (a.k.a. treatment plant) in the validation phase of the treatment study will also be submitted to KEL, a State of Utah Certified Laboratory. Other certified commercial labs may be used if KEL does not have the capability or capacity to analyze for a specific parameter. Analytical data from KEL or other certified labs will be delivered in hardcopy and electronic format to the RD sub-project manager of the respective project after the analyses pass laboratory quality control. Once RD personnel have validated the data, it may be used to prepare reports, maps, tables, and graphics. Record keeping and data management for chemical analyses from this programs will accord with those for all other liquids and solids in the KUCC program.

In addition to samples of waters and tailing, discussed above, the Tailing Geochemistry investigations will include mineralogical evaluations of samples of both tailing and pipeline scale. The mineralogical evaluations will be performed by Dr. John Jambor (Leslie Consulting – R&D Division, Tsawassen, B.C., Canada) and/or Mr. Mark Logsdon (Geochimica, Inc., Ojai, CA) using the facilities of the University of British Columbia (Vancouver, B.C.) or University of Waterloo (Waterloo, Ontario). The mineralogical results are not well suited to computerized databases. Instead, hard copies of the mineralogical reports will be maintained in the hard-copy archive.

RD groundwater samples will be collected as per GCMP Standard Operating Procedures (KUCC 1999a) by a member of the KUCC Water Sampling Group. RD project personnel will communicate with this group to verify sample collection dates and status of analysis. The water samplers will log each sample into the GCMP Tracking System and submit the samples to KEL. The laboratory will be responsible for analysis and internal quality assurance/quality control (QA/QC) procedures. After analysis, groundwater sample results and quality control (QC) information will be submitted to the KUCC Water Sampling Group leader for acceptance and validation. KUCC water samplers will validate these data using the procedures identified in the QAPP (KUCC, 1999b). After data pass both laboratory and KUCC Water-Sampler quality control checks the RD quality control manager will verify it before inclusion in the RD database.

Water level information collected during well sampling will follow the same flow path as groundwater sampling and analytical information. Water levels collected for site-wide, short

time duration events will be entered into the Hydro-database, managed by Strategic Resources Group. These data will also be included in the RD/RA Water Information Database. Flow and pumping records and new-drilling information will be managed by Strategic Resources Group in the Hydro-database and/or the GSW database (see section 3.2). These data may be extracted from these databases for inclusion by RD project personnel in reports and other documents.

3.2 COMPUTER SYSTEMS FOR WATER DATA MANAGEMENT

Field geochemistry data associated with an RD water sample is stored in the GCMP Tracking and Field Data system administered by the KUCC water sampling team. Field data (pH, temperature, depth to water, etc.) are then merged with the analytical data by KEL into the Laboratory Information Management System (LIMS). This relational database is administrated by KEL and accessed using Structured Query Language (SQL). When KEL has verified the data as passing quality control, the KUCC water sampling team queries them from LIMS into the GCMP Database. Once the KUCC Water Sampling Group verifies the data, Kennecott Strategic Resources Group (SRG) will run Microsoft Visual FoxPro 6.0 and/or SQL queries to extract ground and surface water data, including the RD-specific data from LIMS and append it to the Ground and Surface Water Management System (GSW) database. The GSW program was developed by Kennecott in 1994 to house and access well-construction and location information and view and print analytical data time-series charts. This database, administrated by SRG, contains the full available historical record of aqueous chemistry data on KUCC monitoring wells. Any new well drilling and completion information will also be stored and accessed via the GSW program.

A Microsoft Excel- and Visual FoxPro-based database called the Hydro-database will house water level information from site-wide water level measurements not collected as part of water-quality sampling. Monitoring of well extraction rates and water levels are also stored in this database, which is administrated by SRG personnel. The water-chemistry data from the GSW system and the water-level information from the Excel spreadsheets will be combined using Microsoft Access and/or Visual FoxPro to create an RD/RA Water Information Database which can be used for analysis and evaluation of RD/RA sampling activities. Before inclusion in this database the data will be validated by the RD Quality Control Manager. Any data qualifiers resulting from the data validation will be added to the database.

Once the analytical data are entered in the database and are validated for quality assurance/quality control, Microsoft Access, Visual FoxPro, and/or Microsoft Excel will be

used to generate summary tables (hard copy and electronic copy) for monitoring reports. Both the hard copy and electronic copy of the summary tables and the hard copy of the original laboratory analytical reports will be included with monitoring reports submitted to the Technical Review Committee. The electronic summary tables will be submitted on either 3½-inch computer disk or compact disk, depending on file size.

Note that the computer network storage space allocated to these databases have various levels of user security. Only qualified project personnel will have the read and write capabilities on these databases. Select other SRG personnel involved with the RD/RA will have read-only access to the data. In this manner, the RD database will be useable and accessible, but cannot easily or mistakenly be changed.

4.0 DOCUMENT AND RECORDS CONTROL AND RETENTION

Documents generated during the RD/RA phase, including reports (draft and final versions), work plans, drawings, correspondence, analytical certificates and permits, will be managed and controlled by SRG personnel. This organizational program describes the management of both physical and electronic versions of the documents.

RD/RA project members producing or receiving RD/RA related documents will promptly submit the physical and electronic copies to the document control technician who will enter it into the system. A simple, consecutive numbering system will be used to cross-reference the physical copy with the electronic copy stored in the document control archive database. This unique identifier will consist of "RDRA" as a prefix followed by a consecutive number (e.g. 1, 2, 3 etc.). If the document is a subsequent version of a pre-existing document, a decimal number (e.g. .1) will be added to the unique identifier on the pre-existing document and filed with the previous version. The physical document will be filed in the Document Control Room at the South Facilities Trailer Complex after being labeled and logged into the database. The database application that will organize and store the electronic copies of the documents will be created using Lotus Notes, a document management and information sharing computer program. The archive application will be available to individuals with access to the KUCC computer network using an internet browser such as Microsoft Internet Explorer and security clearance to the documents. Any electronic documents that need to be transferred outside the network can be easily extracted from the Lotus Notes database and emailed or written to CD. If a document does not exist in electronic format, it will be either digitally scanned into electronic format or an abstract or simple description of the document

will be entered into the database with reference to the physical copy. This database will be backed up weekly to prevent permanent loss of data.

The GCMP explains how sampling related documents such as chain of custody forms, field data collection sheets, and water quality reports are filed. KUCC has other filing systems for documents such as invoices, receipts, construction orders, construction drawings, and laboratory documentation of quality control and analysis that will not be included in the RD/RA document control database described above.

KUCC will preserve, and will instruct their contractors and agents to preserve, all documents, records, and information of any kind relating to the performance of the remedial action. These physical documents will be kept by KUCC for a minimum of ten years after all RD/RA work is complete in accordance with 40 CFR Chapter I Part 300. Upon the conclusion of this document retention period, KUCC shall notify the United States at least ninety (90) days prior to the destruction of any such records, documents or information, and, upon request of the United States, KUCC shall deliver all such documents, records, and information to EPA.

5.0 REFERENCES

Kennecott Utah Copper Corporation, 1999a, Standard Operating Procedures for Water Sampling, Version 4, December, 309 p.

Kennecott Utah Copper Corporation, 1999b, Quality Assurance Project Plan for the Ground Water Characterization and Monitoring Plan, Revision 5, December, 29 p.

Kennecott Utah Copper Corporation, 2000, Ground Water Characterization and Monitoring Plan, revision 6, April, 91 p.

Kennecott Utah Copper Corporation, 2001. Final South Facilities Groundwater Remedial Design Work Plan. Version C, August 6, 2001. 44 p. plus attachments.

Figure 1. RD Data and Records Management Flowchart